Chapter VI

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SUMMARY AND CONCLUSIONS

6.1 STUDY IN RETROSPECT

The present study has been designed to find out the perception and performance of secondary level student teachers regarding the use of self-learning materials. The summary of the study is presented below.

6.1.1 Objectives of the study

The specific objectives of the study are the following:

1. To understand the various self-learning materials already included in the existing B.Ed. curriculum.

2. To study the awareness of secondary level student teachers regarding the use of self-learning materials.

3. To analyse the opinion of secondary level student teachers towards the use of self-learning materials.

4. To assess the facilities available, extent of use of facilities and training provided in teacher education institutions with regard to self-learning materials.
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5. To understand the difficulties faced and the suggestions made by student teachers for the effective utilization of self-learning materials and devices.

6. To prepare self-learning materials for the use of student teachers at secondary level.

7. To compare the performance of secondary level student teachers who followed the prepared self-learning materials and conventional lecture method of teaching.

8. To compare the performance of those secondary level student teachers who followed each of the prepared self-learning materials such as computer assisted instructional materials, instructional modules and multimedia package.

6.1.2 Hypotheses of the study

The hypotheses formulated for the present study are the following

1. The secondary level student teachers do not have adequate awareness on self-learning materials.

2. The secondary level student teachers are in favour of using self-learning materials.

3. The teacher education institutions do not have sufficient facilities, devices and equipments for the use of self-learning materials.
4. The training provided by teacher training institutions in preparing and using self-learning materials is not adequate.

5. The performance of student teachers who used the self-learning materials will be much better than the performance of student teachers who followed conventional lecture method of teaching.

6. There is no significant difference in the performance of student teachers who used self-learning materials like computer assisted instruction, instructional modules and multimedia package.

6.1.3 Methodology in Brief

Survey and experimental methods are adopted for the present study. The major tools and techniques used for the collection of data are:

1. Content Analysis
2. Awareness test
3. Opinionnaire
4. Questionnaire
5. Prepared self-learning materials
   a) Computer assisted instruction
   b) Instructional module and
   c) Multimedia package
6. Achievement test

The sample for the survey comprises 1200 student teachers belonging to Aided, Unaided and University Colleges of teacher education under
Mahatma Gandhi University (four districts) and random sampling technique was adopted.

For the experimental study 160 student teachers belonging to 5 optional subjects were selected from St. Joseph Training College, Ernakulam. The instructional strategy i.e. the self-learning materials and conventional lecture method was the independent variable and achievement was the dependent variable. The self-learning materials were prepared by the investigator and sample try out was conducted. An achievement test based on the B.Ed. Syllabus was constructed and used for collecting data on achievement.

The data collected through survey and experiment were analysed using appropriate statistical techniques. The major statistical techniques used are paired ‘t’ test, ‘F’ test, and ‘ANCOVA’

6.2 MAJOR FINDINGS

The major findings that have emerged from the present study are the following:

1. The existing secondary level teacher education curriculum covers only a part of theoretical and practical aspects regarding self-learning strategies.

2. The general awareness of secondary level student teachers regarding self-learning materials is not adequate (MWS = 1.91). They have only average awareness on various self-learning materials (MWS = 1.51),
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software materials related to self-learning (MWS = 2.34), projection devices (MWS = 1.64) and non projection devices (MWS = 2.50) related to self-learning. Also the awareness regarding concepts and theories associated with self-learning materials (MWS = 1.34) is low.

3. There is significant difference among male and female student teachers (t = 2.016), with regard to awareness on self-learning materials. Male student teachers are more aware on self-learning materials than female student teachers.

4. There is significant difference in awareness among graduate and post graduate student teachers (t = 3.281), with regard to awareness on self-learning materials. Post graduate student teachers have more awareness on self-learning materials than graduate student teachers.

5. There is significant difference among student teachers of Aided Colleges, Unaided Colleges and University Colleges (F = 37.296), with regard to awareness on self-learning materials. Student teachers of aided colleges have little more awareness on self-learning materials than student teachers of Unaided Colleges and University Colleges.

6. There is no significant difference in awareness among Arts and Science student teachers (t = 0.371), with regard to awareness on self-learning materials.

7. The general opinion of secondary level student teachers towards the use of self-learning materials (MS = 3.42) is favourable. They have
favourable opinion with respect to general characteristics of self-learning materials (MS = 3.59), preparation and implementation of self-learning materials (MS = 3.69). The opinion regarding impact of self-learning materials on learners (MS = 3.41), impact of self-learning materials on teachers (MS = 3.06), self-learning materials and development of values among learners (MS = 3.41) are favourable.

8. There is significant difference in opinion among Arts and Science student teachers (t = 3.052), graduate and post graduate student teachers (t = 3.353) towards the use of self-learning materials. Science student teachers and Post graduate student teachers possess more favourable opinion than Arts student teachers with only graduation.

9. There is no significant difference in opinion among male and female student teachers (t=0.757) and student teachers of Aided Colleges, Unaided Colleges and University Colleges (F = 1.919) towards the use of self-learning materials.

10. Adequate self-learning materials and software packages are not available in teacher education institutions. A small portion of student teachers reported on availability of various self-learning materials like multimedia package (37.50%), computer assisted instructional material (36.92%), instructional modules (38.83%) and programmed learning material (57%). The percentage of student teachers who reported on availability of other software packages are audio cassettes (64.58%), Video cassettes
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(63.25%), films on educational programmes (62.75%) and slides (93.33%).

11. Devices and equipments related to self-learning are available to some extent. The report of student teachers regarding the availability of devices and equipments are reflected in the following:

<table>
<thead>
<tr>
<th>Device</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Still camera</td>
<td>61%</td>
</tr>
<tr>
<td>Epidiascope</td>
<td>56.25%</td>
</tr>
<tr>
<td>Record Player</td>
<td>74%</td>
</tr>
<tr>
<td>OHP</td>
<td>88.83%</td>
</tr>
<tr>
<td>Tape Recorder</td>
<td>87.75%</td>
</tr>
<tr>
<td>Television</td>
<td>82.58%</td>
</tr>
<tr>
<td>Radio</td>
<td>82.58%</td>
</tr>
<tr>
<td>VCR</td>
<td>66.58%</td>
</tr>
<tr>
<td>Slide projector</td>
<td>91.67%</td>
</tr>
<tr>
<td>VCP</td>
<td>61.25%</td>
</tr>
<tr>
<td>Film Projector</td>
<td>60.92%</td>
</tr>
<tr>
<td>Computer</td>
<td>70.33%</td>
</tr>
</tbody>
</table>

12. The extent of use of available facilities, devices and equipments by student teachers are not satisfactory. Some of the student teachers had never used still camera (7.16%), record player (8.08%), tape recorder (7.75%), radio (13.08%), slide projector (10.83%), film projector (9.58%), epidiascope (11.66%), OHP (7.66%), television (12.66%), VCR (11.33%), VCP (11.5%) and computer (8%) during their teacher training course. A large number of student teachers had rarely used still camera (31.67%), record player (38.75%), tape recorder (42.75%), radio (42.75%), slide projector (50.66%), film projector (36.83%), epidiascope (32.08%), OHP (46.75%), television (42.91%), VCR (37.25%), VCP (33.66%) and Computer (31.58%) during their teacher training course.
13. The training and guidance provided in teacher education institutions for preparing and using self-learning materials are not adequate. The report of student teachers are the following:

Response with regard to preparation of self-learning materials during training period - 34.75%

Response with regard to guidance received in preparing self-learning materials - 38.66%

Opinion with regard to use of self-learning materials during B.Ed. course - 53.67%

Opinion about the need for getting training in preparing self-learning materials - 89.17%

Opinion about using self-learning materials in transacting B.Ed. curriculum - 87.50%

14. The major problem reported by student teachers in the non-use of self-learning materials is the lack of training (80.50%). Lack of facilities (69.25%), lack of finance (68.35%), lack of time (66.25%), over-crowded syllabus (65.33%) and lack of adequate knowledge (57.83%) are the other reasons reported by student teachers against the non-use of self-learning materials, devices and equipments.

15. The suggestions made by student teachers for the effective use of self-learning materials are the following:

- proper training should be provided to prepare and use self-learning materials - 84.08%
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- modern self-learning materials, devices, and equipments are to be provided in teacher education institutions  - 78.17%

- introduce the theoretical aspects of various self-learning materials in teacher training curriculum  - 82.92%

- certain topics in B.Ed. curriculum should be transacted through self-learning mode  - 76.33%

- there should be co-operation from management authorities in implementing self-learning materials, devices and equipments in teacher training institutions.  - 72.92%

16. The performance of student teachers in achievement test regarding the use of prepared computer assisted instructional material is better than the student teachers who followed conventional lecture method of teaching. There is significant difference in mean post-test scores of student teachers in the Experimental Group-I and Control Group (t=11.458)

17. The performance of student teachers in achievement test regarding the use of prepared instructional modules is better than the student teachers who followed conventional lecture method of teaching. There is significant difference in mean post-test scores of student teachers in the Experimental Group-II and Control Group (t = 8.56).

18. The performance of student teachers in achievement test regarding the use of prepared multi-media package is better than the student teachers
who followed conventional lecture method of teaching. There is significant difference in mean post-test scores of student teachers in the Experimental Group-III and Control Group ($t = 11.242$).

19. The analysis of co-variance applied to the pre-test and post-test scores of student teachers in Experimental Group-I and Control Group showed that the two groups differ significantly in their post-test scores in achievement test. ($F_{xy} = 155.194$). When the adjusted means of the post-test scores of student teachers in the Experimental Group-I and control group were tested for significance, it was found significant ($t=12.484$). Hence the student teachers in Experimental Group-I performed better in achievement test than student teachers of control group who followed conventional lecture method of teaching.

20. The analysis of co-variance applied to the pre-test and post-test scores of student teachers in Experimental Group-II and Control Group showed that the two groups differ significantly in their post-test scores in achievement test ($F_{xy} = 124.339$). When the adjusted means of the post-test scores of student teachers in the Experimental Group-II and Control Group were tested for significance, it was found significant ($t = 11.158$). Hence the student teachers in Experimental Group-II performed better in achievement test than student teachers of control group.

21. The analysis of covariance applied to the pre-test and post-test scores of student teachers in Experimental Group-III and Control Group showed
that the two groups differ significantly in their post-test scores in achievement test. \((F_{x} = 132.162)\) When the adjusted means of the post-test scores of student teachers in the Experimental Group-III and control group were tested for significance, it was found significant \((t = 11.622)\). Hence the student teachers in Experimental Group-III performed better in achievement test than student teachers of control group.

22. The nature of optional subject of student teachers have no significant influence on performance who used self-learning materials such as computer assisted instruction, instructional module and multimedia package.

23. The performance of student teachers in achievement test regarding the use of computer assisted instructional material is slightly better than the student teachers who used instructional modules and multimedia package. On comparing the mean post-test scores of student teachers in achievement test, there is significant difference among student teachers who used computer assisted instructional material and multimedia package \((t = 3.054)\) and among the student teachers who followed instructional module and multimedia package \((t = 2.387)\). But the difference is not significant among student teachers who followed computer assisted instructional material and multimedia package \((t = 0.873)\).

24. The analysis of co-variance applied to the pre-test and post-test scores of student teachers in the Experimental Group-I, Experimental Group-II
and Experimental Group-III showed that the three groups differ significantly in their post-test scores in achievements test \((F_{y.x} = 6.0547)\). When the adjusted means of the post-test scores in the Experimental Group-I, Experimental Group-II and Experimental Group-III were tested for significance, it is found that the performance of student teachers who used computer assisted instruction is slightly better than that of student teachers who used instructional module. The difference in performance is not significant among student teachers who used computer assisted instructional material and multimedia package and also among student teachers who used instructional module and multimedia package.

6.3 **TENABILITY OF HYPOTHESES**

The tenability of Hypotheses are stated below:

**Hypothesis I**

The secondary level student teachers do not have adequate awareness on self-learning materials.

Finding No. 2 shows that the secondary level student teachers do not have adequate awareness on self-learning materials. Thus the above mentioned hypothesis is substantiated.

**Hypothesis II**

The secondary level student teachers are in favour of using self-learning materials.
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Finding No 7 shows that the secondary level student teachers have favourable opinion towards the use of self-learning materials.

Thus the hypothesis formulated above is substantiated.

Hypothesis III

The teacher education institutions do not have sufficient facilities, devices and equipments for the use of self-learning materials.

The finding numbers 10, 11 and 12 reveal that adequate self-learning materials, software packages, facilities, devices and equipments are not available in teacher training institutions and the devices and equipments are very limited. Then the hypothesis formulated above is substantiated.

Hypothesis IV

The training provided by teacher training institutions in preparing and using self-learning materials is not adequate.

The finding number 13 shows that the training and guidance provided in teacher education institutions for preparing and using self-learning materials is not sufficient. Hence the above formulated hypothesis is substantiated.

Hypothesis V

The performance of student teachers who used self-learning materials will be much better than the performance of student teachers who followed conventional lecture method in teaching.
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The finding numbers 16, 17, 18, 19, 20 and 21 reveal that the performance of student teachers in achievement test regarding the use of self-learning materials such as computer assisted instructional material, instructional module and multimedia package are significantly better than that of student teachers who followed conventional lecture method of teaching. Thus the hypothesis formulated above is substantiated.

Hypothesis VI

There is no significant difference in the performance of student teachers who used self-learning materials like computer assisted instruction, instructional module and multimedia package for learning.

The finding numbers 23 and 24 show that the performance of student teachers in achievement test who used computer assisted instructional material is better than that of student teachers who used instructional modules. Then the hypothesis formulated above is partially substantiated.

6.4 CONCLUSIONS OF THE STUDY

The major conclusions that emerged from the study are given below.

The findings of the study indicate that student teachers do not have an adequate awareness on use of self-learning materials in teaching and learning process and they have low awareness on use of software packages, various devices and equipments related to self-learning and the student teachers
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expressed their high favourable opinion in using self-learning materials for teaching and learning purposes.

The study reveals that adequate self-learning materials like instructional module, computer assisted instructional material, multimedia package and software packages like audio-video cassettes, CD's on educational programme, films etc. are not available in teacher education institutions under study and the extent of use of available facilities, devices and equipments related to self-learning programme are not satisfactory.

The training and guidance provided in teacher education institutions for preparing and using self-learning materials are not adequate. Teacher educators are not using any type of self-learning materials or software packages for transacting B.Ed. curriculum and student teachers are not using any material for their learning or practice teaching purpose and according to the report of majority of student teachers 'lack of training' is the main reason for not using self-learning materials in teacher education institutions.

The performance of student teachers in achievement test with regard to the use of prepared computer assisted instructional material, instructional modules and multimedia packages are better compared to the conventional lecture method of teaching. The ‘t’ value obtained for the pre-test and post-test scores of Experimental Group-I and Control Group (t = 11.458), Experimental Group-II and Control Group (t = 8.056) and Experimental Group -III and Control Group (t = 11.242), are highly significant at 0.01 level.
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When adjusted means of post-test scores obtained by ANCOVA were tested for significance of the difference among them, it was found that the performance in achievement test of student teachers with regard to computer assisted instruction, instructional module and multimedia package are better than that of student teachers who followed conventional lecture method of learning.

The findings also indicate various optional subject has no significant influence on the performance of student teachers who used self-learning materials such as computer assisted instruction, instructional module and multimedia package and performance of student teachers with regard to computer assisted instructional material is slightly better than the student teachers who used instructional module.

6.5 SUGGESTIONS OF THE STUDY

The findings of the study revealed that the perception of student teachers regarding the use of self-learning materials is not up to the level. According to the report of majority of student teachers, teacher training institutions are lacking facilities and devices which can be used for self-learning and student teachers are not getting proper training or education in this field. So they are not so familiar with preparation and use of self-learning materials, devices and equipments related to self-learning. A large number of student teachers reported that the available facilities are rarely used for teaching and learning purposes. The reasons behind this are lack of training, lack of finance and lack of time. Among these, lack of proper training is found to be one of the main factors of not using self-learning materials effectively.
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The study also revealed that the performance of student teachers in achievement test who used the prepared self-learning materials is much better than the student teachers who followed conventional method of teaching. On the basis of these facts the following suggestions are made.

Courses must be designed and offered to train and educate student teachers in preparing and using self-learning materials.

In order to develop the perception of student teachers regarding the use of self-learning materials, it would be necessary to enhance the awareness about self-learning materials. For creating awareness among student teachers, courses must be designed and offered to train and educate them in preparing and using various self-learning materials.

Courses must be organised for teacher educators to prepare their own materials.

The study proved that lack of proper guidance is one of the factors of not using self-learning materials effectively. So that in-service and refresher courses should be organised for teacher educators to make them familiarize with preparation and use of various self-learning materials.

Experts in the field of Education are to be encouraged to prepare self-study materials and contribute to the teacher education institutions.

One important front for improving the quality of education is the provision of effective learning materials and facilities for learning. Experts in the field of Education and also national and state institutions such as NCTE,
UGC, NCERT, SCERTs and DIETs are to be encouraged to prepare self-learning materials based on teacher education curriculum and contribute to the teacher education institutions.

Promote utilization of self-learning materials

To promote utilization of self-learning materials, it would be necessary to provide adequate financial support to institutions and experts to develop educational packages in Audio, Video, CD-ROM and Multimedia packages.

Research should be conducted to develop effective and feasible self-learning materials.

The study revealed that for attaining more achievement, the prepared self-learning material is more effective than the conventional lecture method of teaching. So more research studies should be conducted to develop effective and feasible self-learning materials.

ICT based teacher education curriculum should be adopted

Today's students live in a global, knowledge based age, and they deserve teachers who practices the best that technology can bring to learning. Also significant progress in information and communication technology has necessitated to adopt ICT based teacher education curriculum. Hence teacher educators and student teachers may use computers, CD-ROM and Multimedia for delivery of lessons and for practice teaching. They also use internet for browsing and downloading relevant information for self-learning purpose.
SUGGESTIONS FOR FURTHER RESEARCH

It is hoped that the present study would open paths for further research in the area of self-learning strategies. Some of the possible suggestions in which further studies can be carried out are listed below:-

1. Similar studies on wider sample would be conducted for more valid generalisations.
2. Similar studies can be conducted for preparing self-learning materials for in-service training of teacher educators and teachers.
3. Studies can be conducted to find the effectiveness of self-learning strategies on fast learners, underachievers, gifted learners, slow learners, sensitive learners, learners with short concentration spans, learners with language difficulty and absentees.
4. Experimental studies can be conducted to find the effectiveness of self-learning strategies with other innovative teaching methods like mastery learning, models of teaching, small group techniques of teaching etc.
5. Studies can be conducted to prepare self-learning materials for remedial teaching programme.
6. A comparative study can be conducted to find the effectiveness of various self-learning strategies with that of conventional method of teaching.
7. Studies can be conducted to identify available resources and materials for self-learning purpose.
8. Studies can be conducted to find the learning needs of students regarding the use of self-learning materials.